

ARCHITECTURE

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Howells & Stokes, Architects.

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BEAUX ARTS COMPETITIONS,

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RESOLVED, That the Executive Committee of the New York Chapter of the American Institute of Architects, The Society of Beaux Arts Architects, and the Architectural League of New York, desire in the name of their respective societies to express their sense of the great loss which the Profession and the Art of Architecture has sustained in the death of Stanford White.

His quick and generous appreciation of all that is beautiful, even beyond the field of his immediate profession, was so genuine that the influence of his work will long continue to be a stimulus to the artistic development of this country.

Only those of us who have been closely associated with him professionally, can fully appreciate the love and enthusiasm with which he devoted himself to Art.

His was a commanding personality, and whatever he produced had the touch of genius.

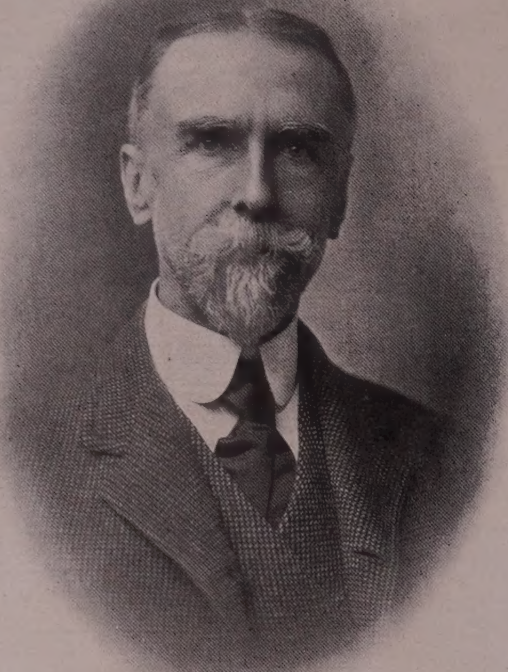
PROFESSIONAL COMMENT.

IT is a new experience for the architect to be called in consultation with the medical man, but the scientific world evidently believes that good results may follow such consultation, and for that purpose a society was formed some years ago known as the Association for the Promotion of Hygiene and Salubrity in Dwellings. This Association is international in character, and it is to hold its second Congress in Geneva from September 4th to 10th. The promoters of the Congress have issued a prospectus in English in which their aims are briefly set forth, and which also gives a complete list of the delegates, including a considerable number from the United States. Prof. Despradelles of the Institute of Technology, Boston, seems to be the only architect amongst the American members; but a number of New York men have been asked to contribute papers on subjects which are peculiar in American life. The three most important subjects which are to be considered at the Congress are: First, The Necessity and means of the transformation of unhealthy blocks of houses in cities: Second, The Application of Sanitary Legislation in the case of unhealthy dwellings: Third, Hygienic Systems of Heating. Amongst the architectural members from other countries are John Belcher, President of the Royal Institute of Architects of Great Britain, Charles Bartaumieux, Vice President of the Society of French Architects, and Dr. Cuypers, of Amsterdam.

ELECTRICAL contractors have complained for a number of years of the difficulty which they find in estimating from architects' and engineers' drawings for the reason that no consistent method of symbols has been generally adopted by the building trades, and in order to overcome this defect, the National Electrical Contractors Association, at their last convention, appointed a Committee to draft a set of signs and symbols which they will attempt to have adopted throughout the country. With this object in view, Mr. A. W. Sanborn, of Indianapolis, representing this special Committee, has addressed a number of architects asking them for their advice and assistance, and also for a copy of the symbols which they use in their own practice.

THIS is the season of conventions, and the American Society of Civil Engineers have just had theirs in the Thousand Islands. During the proceedings the usual discussion took place as to the relation between the architect and the engineer, and, as usual, some of the members "took a fall" out of the Architect. In the course of a discussion relative to the membership, several delegates objected to the inclusion of architects, some on the ground that the architect of to-day was "nothing more than a decorator," and a few in the belief that architecture was wholly an art. Many of the members, however, expressed the rational opinion that if the architect practices Civil Engineering as part of his work, he should be eligible to membership. The Convention also put itself on record as defining the Civil Engineering as including branches commonly called mechanical, mining, electrical, naval, and military.

IF it were not that the recent President of the New York Chapter of the Institute of Architects is such a serious gentleman, we should take his communication to the *American Architect* in relation to securing a legal advisor to the Chapter, as a joke. In this letter, this gentleman submits a competitive programme under which it is proposed to ask a number of attorneys to submit a brief in order to secure an appointment to represent the Chapter as legal advisor. The writer of the communication states in his last paragraph that



Architects of To-Day.

MR. J. B. NOEL WYATT, BALTIMORE.

"I find myself questioning whether the eminent lawyers to whom this programme should be sent, would consider it complimentary to be asked to enter such a competition," and he further states that he would like advice from his fellow practitioners on this subject. It certainly seems to us that the writer's second thought is correct, and we think it decidedly inconsistent in an organization which has consistently discouraged competitions in their own practice, to encourage similar procedure in other professions. The architectural profession is familiar and hardened to this undignified method of securing work, and occasionally, some man with a high standing will even enter an open race. The legal profession has fortunately been free from this evil, and their leaders are not likely to be willing to begin the system when other professions have found it unsatisfactory. We think decidedly that many of the men to whom such a programme would be sent, would be offended; but, at the same time, as we frequently find the names of attorneys of high standing on building committees, it occurs to us that the effect of offering them some of their own medicine, might induce them to alter their views in relation to architectural competitions.

"NINETY per cent. of New York's buildings are erected by the speculator," said an architect who has lately been examining a lot of apartments. "During the past six months I have had occasion to examine a large number of apartment buildings erected by these men, as a representative of the buyers. In almost every case I have found the workmanship atrocious. The standards are exactly those set by the law—not one whit better. In a very few cases I have found that houses were built in a superior manner, but in each of these cases, I have also found that the speculator had lost money, whereas the Jerry builder had made a profit." The

explanation of this state of affairs is first, that in order to sell his buildings at a profitable figure, the speculator must secure as large a loan as possible; second, the Loan Companies give just as large a loan to the man who builds poor houses as to the builder who strives to erect a good one. The character of the construction of the average buildings in New York City could be raised twenty-five per cent. by the Loan Companies giving a few thousand dollars more loan to the good man than to the poor one. If this were done, all speculators would find it profitable to build a good house. Jerry buildings would not pay.

That good tenements and apartments *do* pay, is shown by the recent report of the City and Suburban Homes Company for the year ending May, 1906. This company now has over \$4,000,000, invested in real estate, the bulk of which is in model tenements. During the year just passed, they have paid 4½ per cent. upon the investment, although only 4 per cent. is guaranteed, and the very comprehensive report of Dr. Gould says that "there seems to be no valid reason," while with the increased capital invested, "dividends cannot be paid at the rate of at least 5 per cent." The report also calls attention to the fact that, although New York's tenement problem is much more urgent than London's, London has more than \$100,000,000 invested in such properties.

ACCORDING to the newspapers, the Board of Apportionment has authorized an expenditure of \$200,000 for "repairs" on the Hall of Records. The building is not yet occupied, and the public have been wondering how this amount of money can be spent in "repairs" upon a structure that is not yet turned over by the contractor.



Architects of To-Day.

MR. WILLIAM G. NOLTING, BALTIMORE.

A SCHEME is on foot in New York City to erect an office building entirely devoted to the uses of architects. It is to be near the center of the city and it is the intention of the promoters to so arrange the plan that the suites of offices will contain drafting rooms with good north light in conjunction with smaller private offices. This experiment has been tried with success in the case of physicians' office buildings, but we think this is the first time that the experiment has been attempted with other professions.

THE extent to which Uncle Sam goes into building operation is appalling. During the past Congress, public buildings were authorized in every State in the Union and in many of the outlying Islands. Six hundred and twenty-five thousand dollars was appropriated for the State of Illinois, one million and a half dollars for the State of New York, over one million dollars for Pennsylvania, and in fact, very few States come in for less than a quarter of a million dollars. Furthermore, the New York appropriation referred to does not include the prospective expenditure for the post office in New York City.

GENERAL WILLIAM SOOEY-SMITH has always been known as a most original constructor, and in the mass of matter written in relation to the effect of the earthquake and fire on San Francisco, he has struck one of the few personal notes. In a recent number of the *Construction News* General Sooe-Smith writes most interestingly on how to build so as to guard "against earthquake and fire." The main point made by the writer is that such buildings must "endure heating to redness and plunging in cold water without cracking." In order to obtain this result, he pleads for a new and plastic building material applied to the skeleton frame. In the light of the fact which he sets forth, General Sooe-Smith says that "it would seem to be a sin and a shame to load a steel structure with an enormous weight of heavy and clumsy brick, concrete, or stone which adds little strength but enormous weight, making the building weaker instead of stronger, not safe but more dangerous, less impervious to heat and cold, and far more costly both in foundation and superstructure. Brick, stone, and concrete are, of course, standard materials for building, and each best in its proper place, but no one of these should be used out of its place. They have great resistance to compression, much less tensile strength, and very little to resist transverse strains. These deficiencies are largely supplied to concrete by steel, and the excellent material known as reinforced concrete which is now coming into general use; but they are all three unnecessary and out of place in high buildings except in the floors."

AS to the rebuilding of the Campanile at Venice, the following is sent through Reuter:—"As is known, serious doubts have been raised concerning the methods followed in rebuilding the famous Campanile, especially with regard to the five large steps at the base, now all above ground, while before two and one-half had gradually become entirely covered. The College of Venetian Engineers, presided over by Signor Romanin Jacur, ex-Minister, appointed a committee to study the question and report on it. In the report which has now been presented, the committee say they have especially inquired 'if the work proceeds, and promises to proceed, according to the sentiment and wishes of Venice,' which can be summarised as follows: That the Campanile must stand where it was, and as it was, in order that the historic tower may harmonize as it did before with that sublime artistic center which is

the Piazza of San Marco. Therefore, no line nor any detail outside or inside the Campanile should be changed, as it would be regarded as a profanation to give it a modern appearance. The report, however, fears that this will not be carried out in the reconstruction, as is proved by the five steps above mentioned, which have also the fault of being differently cut from the originals. The new ones are polished, placed with geometrical regularity, and all perfectly even in height and width, while the ancient ones were purposely irregular and rough, producing an artistic effect. The conclusion of the report is rather severe, expressing the apprehension that the new Campanile 'will not respond either to sentiment, to history, or to art.' In view of these criticisms the Municipality has appointed a committee composed of Signor Basile, an architect, Professor Jorini, and Signor Laurenti, a painter, and the art critics Signors Ricci and d'Andrade to give their views on the reconstruction of the Campanile. Meanwhile the work of building is going on actively, and the bell-tower has almost reached the height of the second window."

The Society of Beaux Arts Architects

INCORPORATED 1894.

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Treasurer.

LLOYD WARREN,
3 E. 33d St.
Chairman Committee on
Education.



OFFICIAL ORGAN - - ARCHITECTURE.

WARREN PRIZE COMPETITION.

A MUSEUM FOR A PERMANENT PAN-AMERICAN EXHIBITION OF
NATURAL PRODUCTS FOR THE CITY OF WASHINGTON.

(By ERNEST FLAGG.)

The site of this building or group of buildings is on the low flat land along the Potomac, which is now being laid out as a park. The dimensions of the plot available are eight hundred by twelve hundred feet. The longitudinal axis runs almost due north and south. The southerly end is bounded by one of the new boulevards or parkways. There is a road at the northerly end and the two sides are bounded by park lands.

The requirements are as follows:

Administration: As one object of this exhibition is to promote commerce and intercourse between the various states of North and South America and this country, it is expected that each of the countries represented will maintain a deputation here to look after its exhibits and also to promote its commercial interests; therefore suitable accommodations for these deputations with their clerical force must be provided. It is estimated that upward of seventy thousand feet of floor area in offices will be needed, but most of this can be on the upper floors. On the ground or main floor should be placed a large entrance vestibule with suitable corridors and stairways. Offices of the Chief Commissioner and of ten Deputies; a number of waiting rooms, rooms for clerks and stenographers, and large apartments for special exhibits, receptions and for the holding of conferences, and an auditorium capable of seating fifteen hundred people.

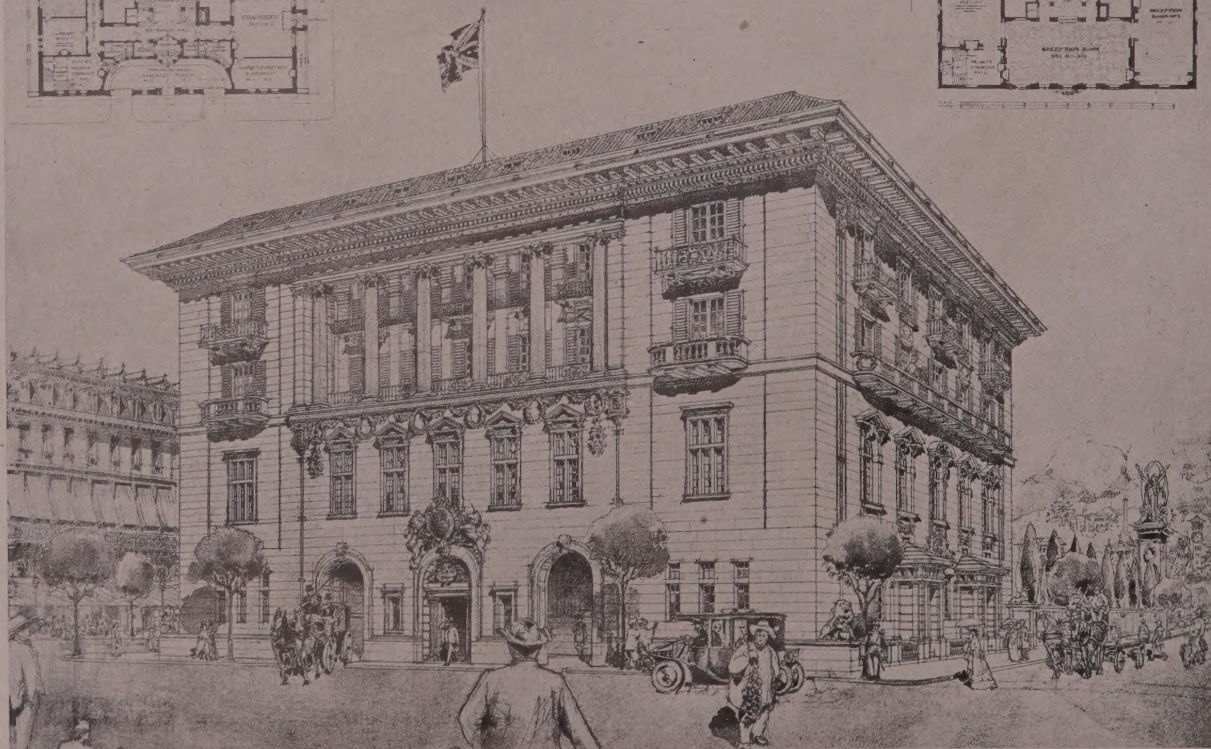
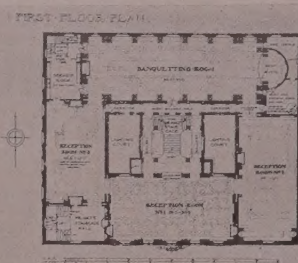
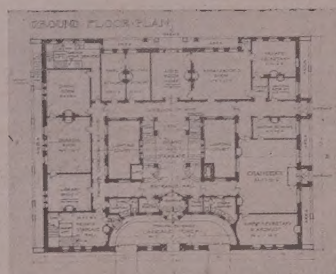
Museum of Mineral Products: This is to occupy either one building or a semi-detached part of the general construction. At

(Continued page 143)



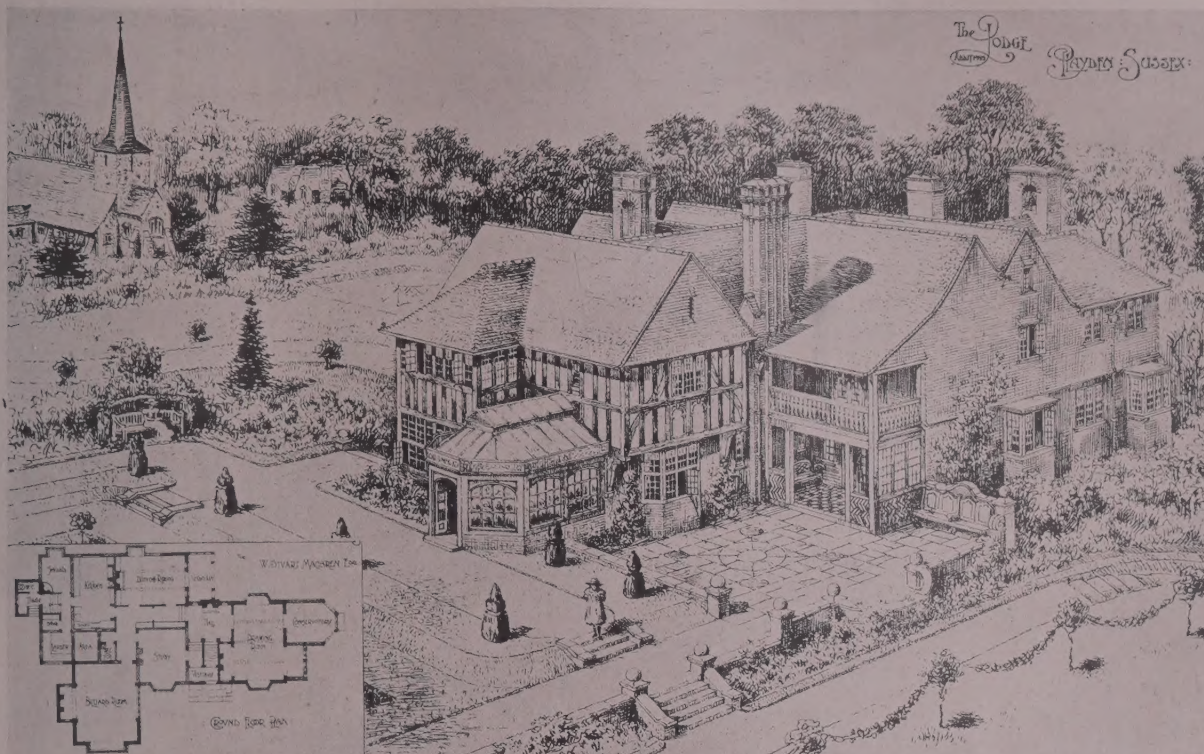
HEADMASTER'S HOUSE, ROYAL NAVAL COLLEGE, DARTMOUTH.

Sir Aston Webb, Arch.



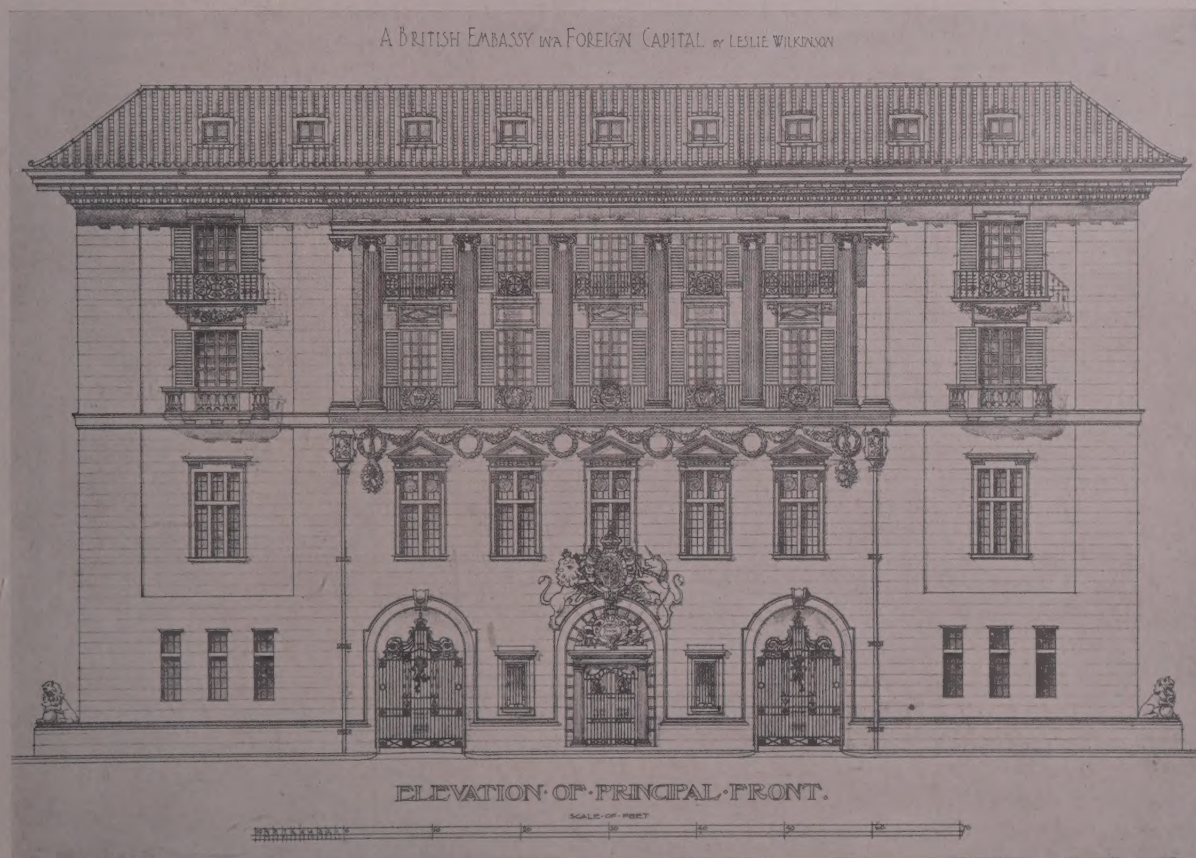
PERSPECTIVE, BRITISH EMBASSY, ROYAL ACADEMY GOLD MEDAL TRAVELING STUDENTSHIP.

Leslie Wilkinson.



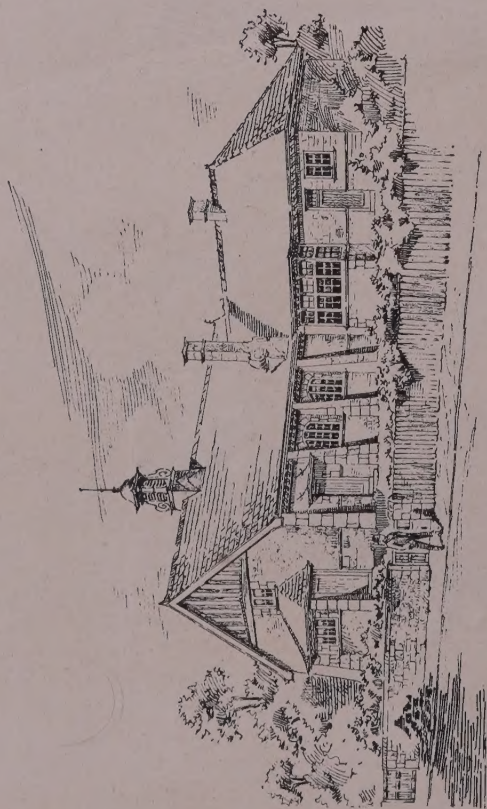
COUNTRY HOUSE, PLAYDEN, SUSSEX.

Philip H. Tree, Arch.



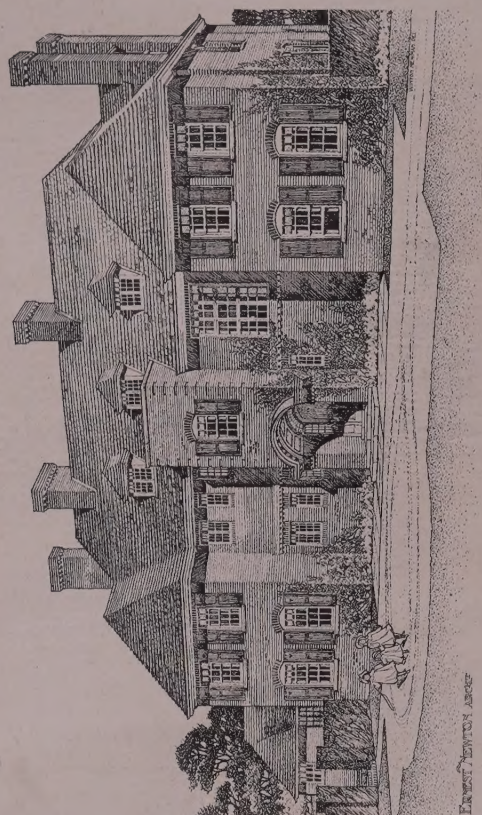
ELEVATION, BRITISH EMBASSY, ROYAL ACADEMY GOLD MEDAL TRAVELING STUDENTSHIP.

Leslie Wilkinson.



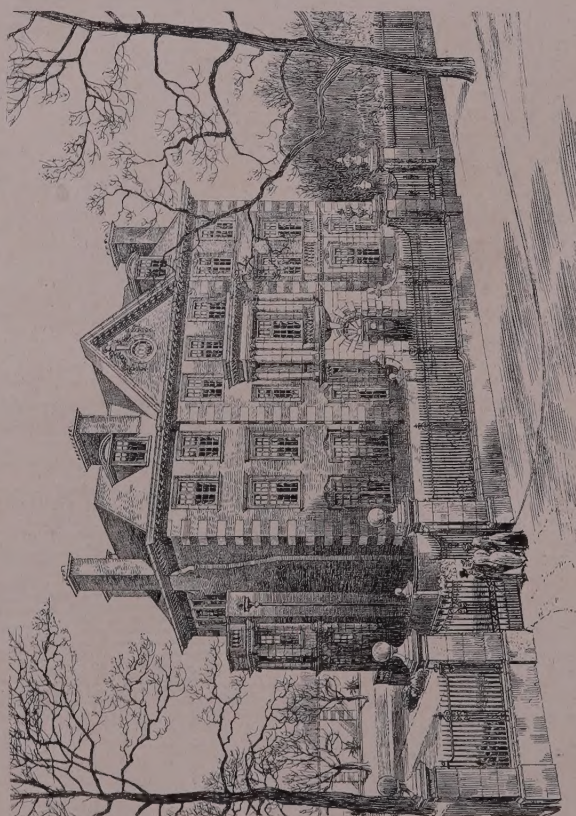
PARISH HOUSE, WHITECHURCH, DEVON.

B. P. Shires, Arch.



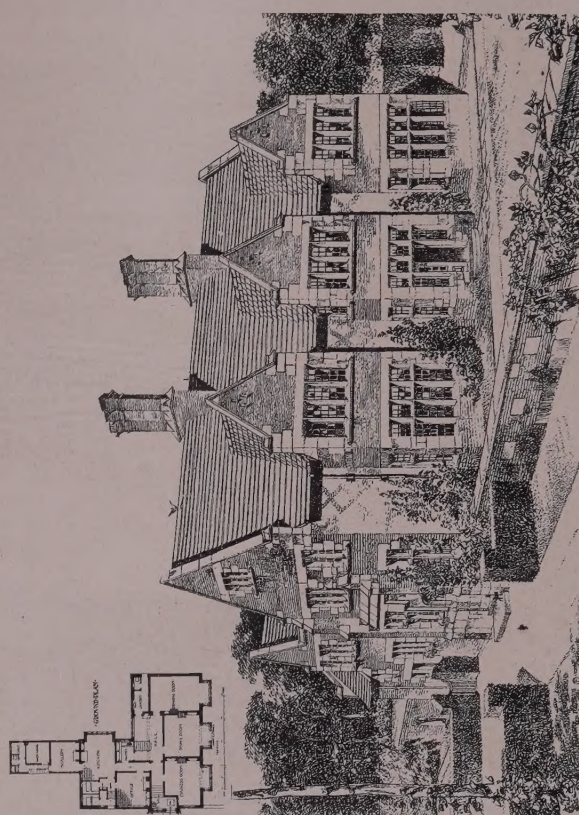
HOUSE, BICKLEY, KENT

Ernest Newton, Arch.



ARUNDEL, KENSINGTON GARDENS.

Read & Macdonald, Arch's.



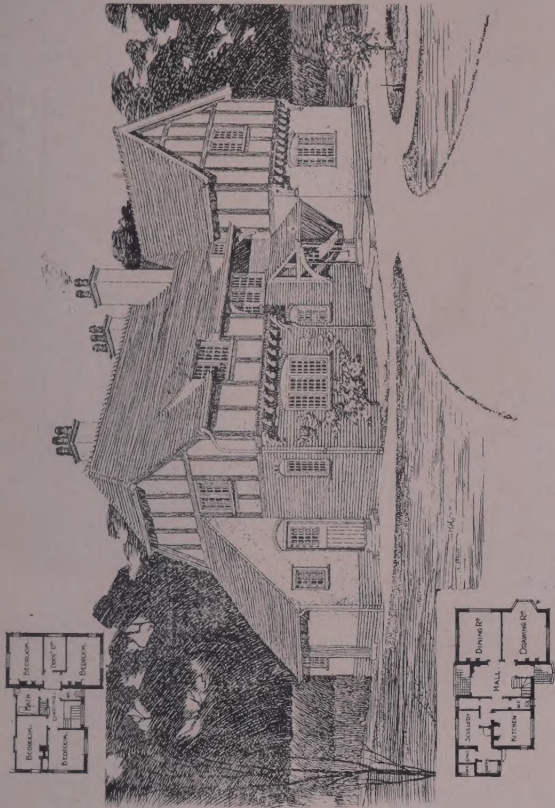
ORMESBY HOUSE, YORKSHIRE.

Fred Rowntree, Arch.



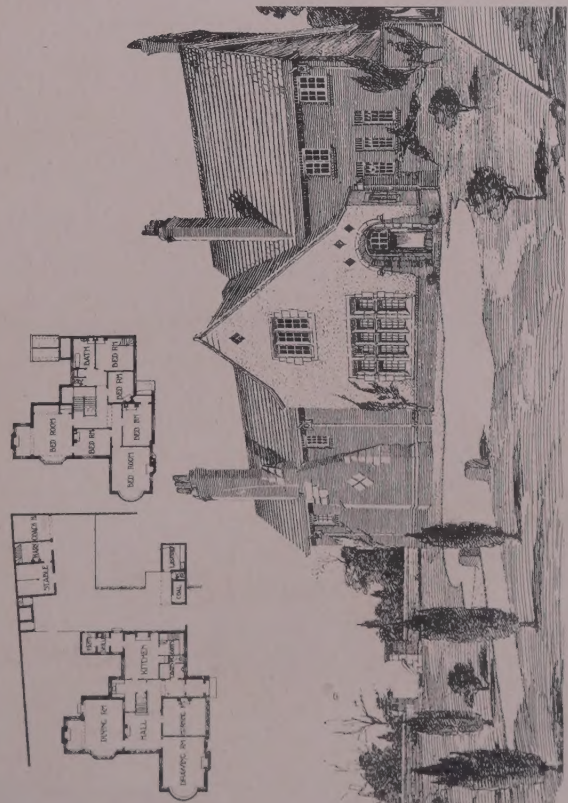
"SEAVIEW", SWANSEA.

Harold Kennard, Arch.



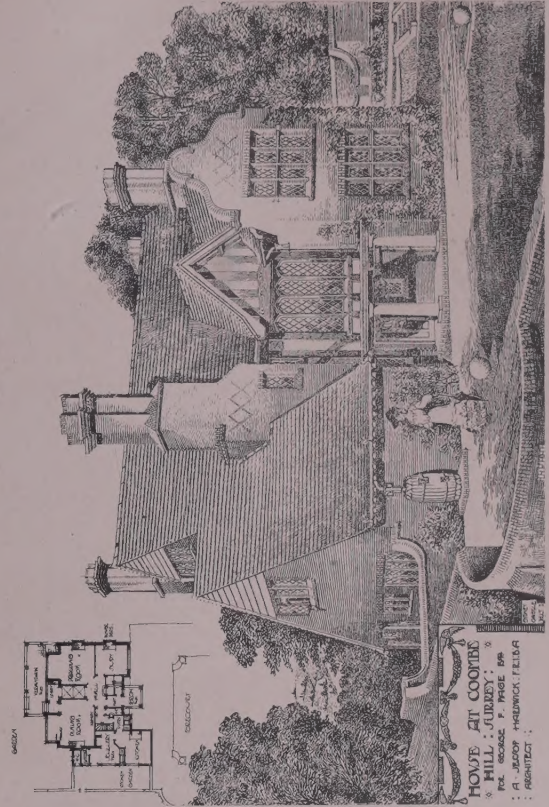
HOUSE, SHIPLEY BRIDGE.

Chas. Nichols, Arch.



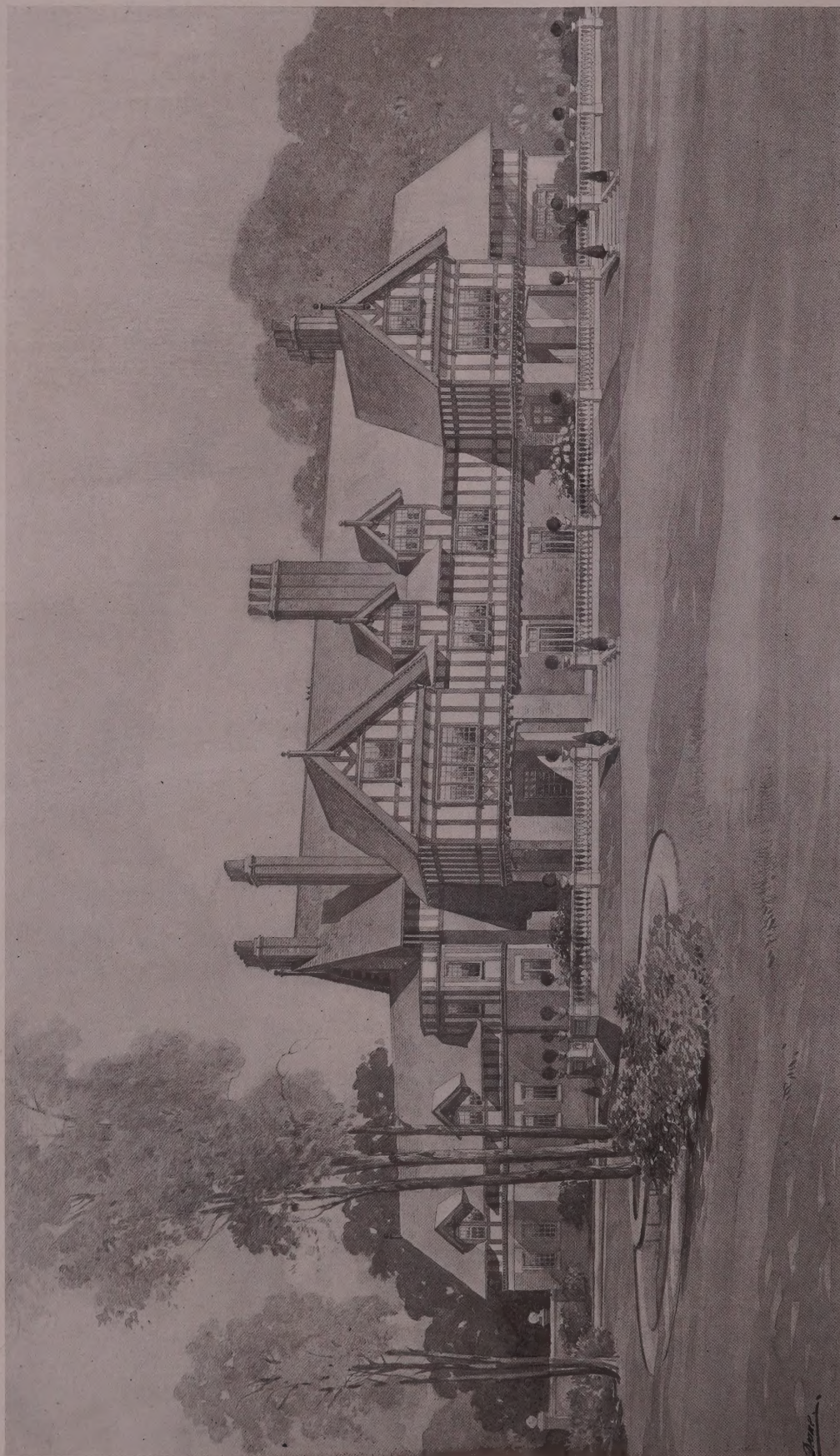
HOUSE, NEWCASTLE ON TYNE.

Marshall & Tweedy, Arch's.



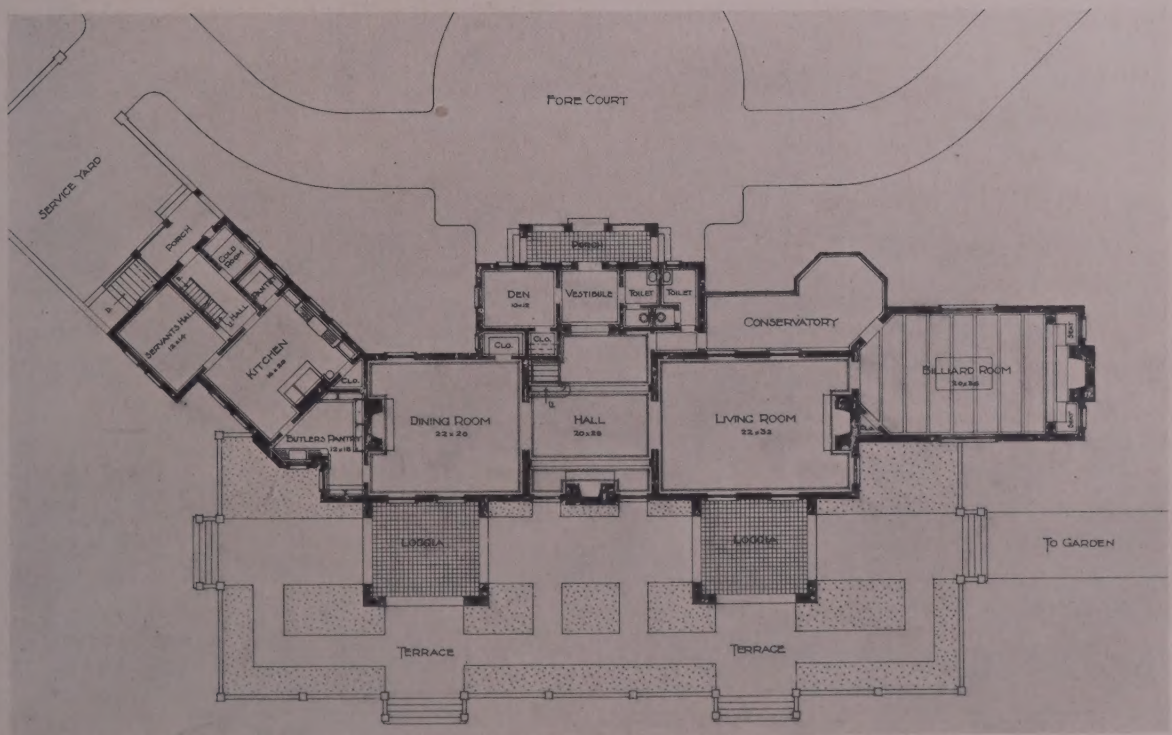
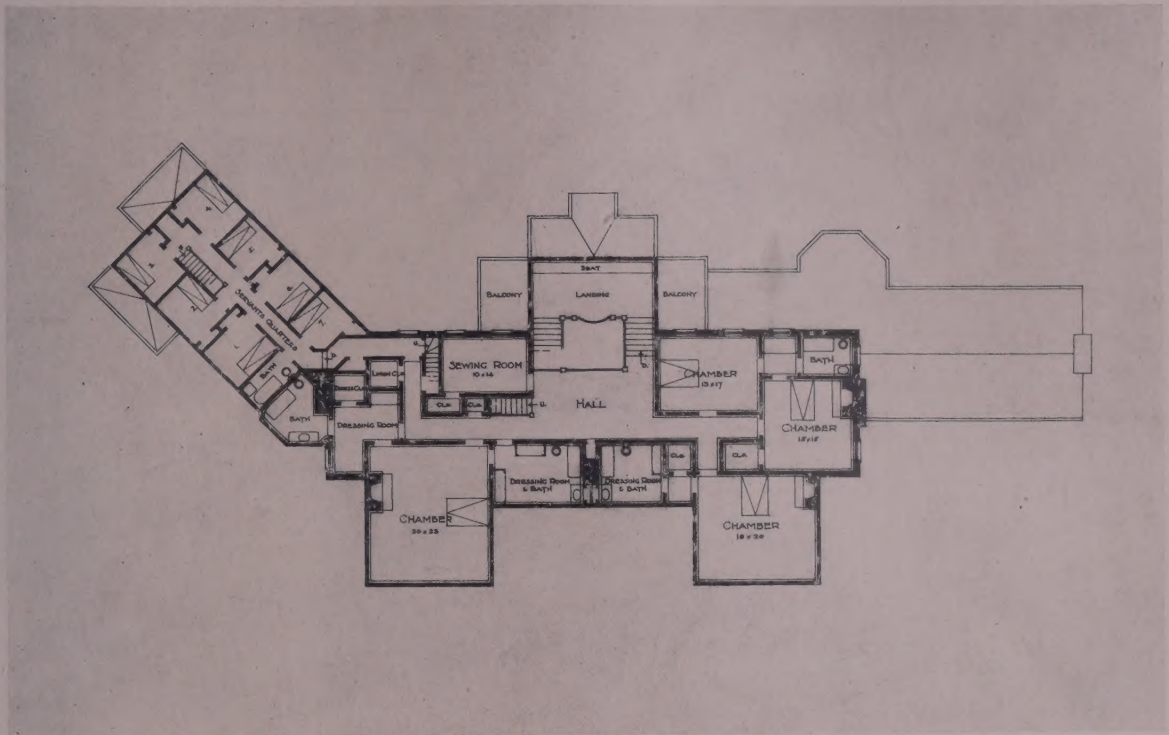
HOUSE AT COMBE HILL, SURREY.

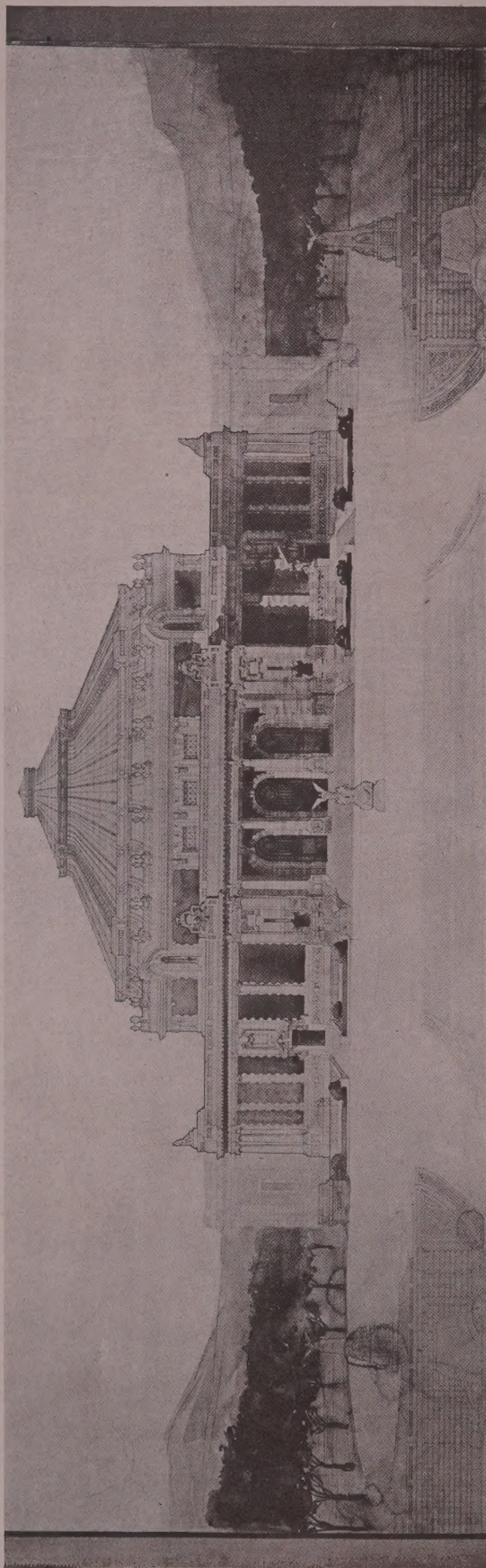
A. J. Hardwick, Arch.



COUNTRY HOUSE, WM. H. ERHART, CEDARHURST, L. I. (For Plans, see page 141)

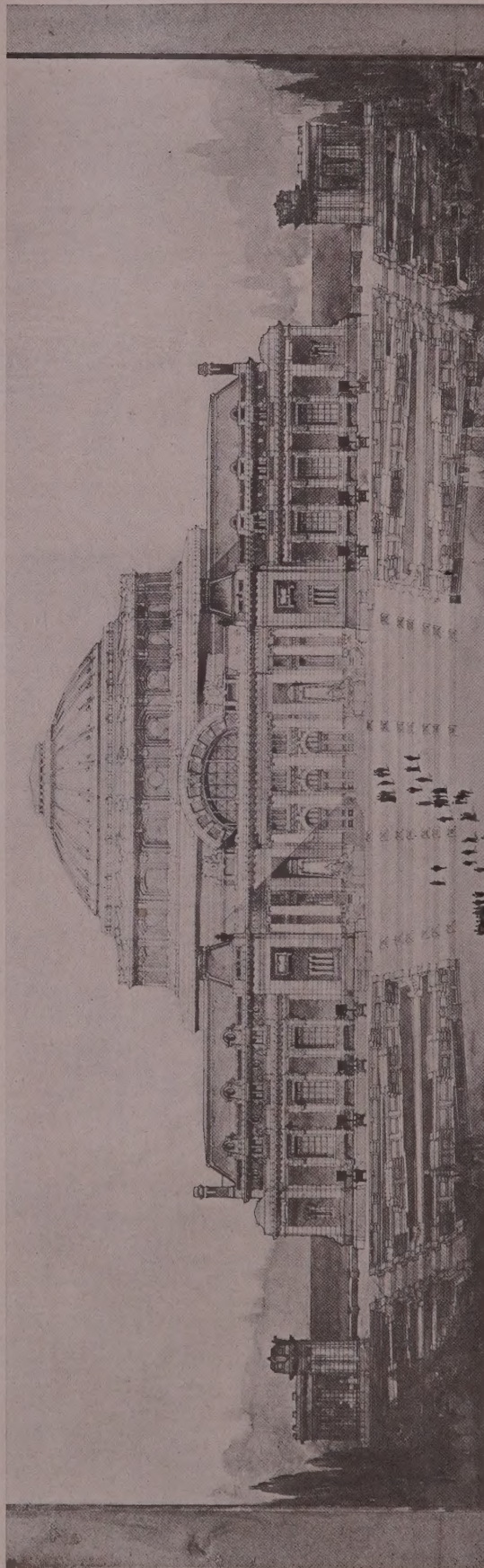
Geo. A. Freeman, F. G. Hasselman, Architects.





II Medal.

W. W. Sharpley, Ateller Cret.



II Medal.

C. H. Bauer, Ateller Cret.

BEAUX ARTS COMPETITION—AN AUDITORIUM FOR CORNELL UNIVERSITY.

(Continued from page 135)

least one hundred thousand square feet of floor area will be required for exhibition purposes and for laboratories, but two-thirds or three-quarters of this may be on upper floors. The building should contain ample vestibules, stairways, corridors and exhibition halls, etc. The library for works relating to the natural history and resources of the two Americas may be placed in this building. This library should contain, besides the stack rooms for two hundred thousand volumes, a large general reading room, a number of smaller reading rooms for students making special investigations, and the necessary vestibules, coat rooms, and rooms for the exhibition of valuable manuscripts, etc.

Museum of Forestry and Agricultural Products: This museum is to consist of ten or more detached or semi-detached parts or pavilions of equal size, one for each of the larger countries, while the exhibits of two or more of the smaller contiguous states may be grouped in one pavilion. Each pavilion should consist of a large glazed exhibition hall, either with or without galleries, where living specimens may be shown, and a suitable vestibule or hall for the display of smaller exhibits. Each pavilion should have an area of at least fifteen thousand square feet. The pavilions may be arranged in one group or in two groups, one for North and one for South America.

Museum of Animal Life and the Fisheries: This building or part is to contain numerous halls for exhibition of preserved specimens of animals, birds, and fishes, appropriately grouped. There should be an available area on each floor of at least thirty thousand feet for exhibition purposes, exclusive of the area required for the usual vestibules, corridors, stairways, toilet rooms, etc. The laboratories are to be in the basement.

Aquarium: This may be located in one or more large halls with or without galleries. It should contain several large pools on the main floor; the tanks may be along the outer walls. The Aquarium should have an area of at least twelve thousand square feet.

Museum of Zoology: This may be divided in two parts, one for birds and one for animals, or it may be treated as a whole. The building or buildings should be grouped about one or more open courts. The ground area allotted to the Aquarium and Department of Zoology should not be less than three hundred thousand square feet.

The drawings required are a plan, a longitudinal section, and an elevation of the southerly front, all at a scale of thirty-two feet to the inch.

REPORT OF JUDGMENT.

Cobb, Chas. S.	Ithaca	Atelier Cornell Univ.	1st Prize
Feirer, F. J.	New York City	Atelier Hornbostel	2nd Prize
Chrystie, E. P.	New York City	Atelier J. H. Hunt	
Thompson, J. A.		Atelier Hornbostel	
Lehman, E.		Atelier Hornbostel	
Clubb, Jr., A.		Atelier Hornbostel	
Flanagan, G. A.		Atelier Hornbostel	
Rebori, A.		Atelier Hornbostel	
McKinney, E. B.		Atelier Hornbostel	
North, Robt.	Ithaca	Atelier Cornell Univ.	

CLASS A—PLAN PROBLEM.

AN AUDITORIUM FOR CORNELL UNIVERSITY.

(By M. PRÉVOT)

It is proposed at the University of Cornell to erect an auditorium to which an Alumni Club and a large banquet room will be adjoined. The plot upon which this edifice is to be built is slightly inclined, but does not command an extensive view. The principal

entrance will be from the side of the slope; secondary entrances from the rear or upper side.

AUDITORIUM.

The auditorium proper is to seat 3,500 people on the ground floor and in one or two large galleries. It will be used for receptions and concerts as well as for lectures and dances. On some of these occasions a movable flooring will be put above the seats and this fact must be considered in the arrangement of the building. Special seats will be reserved for the members of the faculty (about 350 people) with vestibule and special entrance. Reserved seats for trustees, president, and speakers. A monumental organ will be placed behind the faculty seats. Adjoining the auditorium, one or two small rooms for the use of the president and the speaker, special cloak-room for the faculty, large one for the audience. Vestibules and stairways.

ALUMNI CLUB

Will contain on the first floor: Reception room, library, dining room, kitchen, services, etc. This building will have a special entrance. On the second floor: two or three suites for the distinguished guests, and many other rooms for alumni.

BANQUET HALL.

This will be large enough to allow for not less than 1,000 seats with special entrance; vestibule, kitchen and services on same floor. This part of the edifice must be specially monumental and decorated with pictures, busts, and portraits.

The alumni club and banquet hall must be connected with the auditorium. Using bricks for the façades is especially required, stone being of secondary importance. The greatest dimension of the building, not including gardens and sidewalks, will not exceed 300 feet.

For the esquisse make plan section and elevation at the scale of $\frac{1}{32}$ " per foot.

For the rendu: Plan and section at $\frac{1}{16}$ " per foot. Elevation at $\frac{1}{8}$ ".

REPORT OF JUDGMENT.

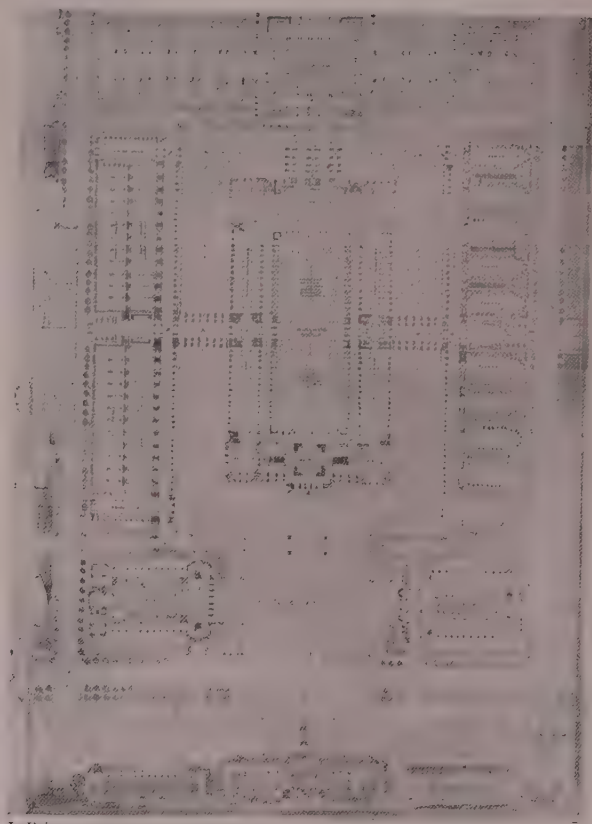
Bauer, C. H.	Philadelphia	Atelier Cret	2nd Medal
Clark, L.		Atelier Cret	1st Mention
Sharpley, W. W.		Atelier Cret	2nd Medal
Cope, C. E.		Atelier Cret	H. C.
Trout, W. P.		Atelier Cret	H. C.

FENESTRATION.*

IN all the great buildings of past ages, which consist of halls arranged side by side, the method of admitting light was constructionally the same. We find in the vast temples of Egypt the same arrangement of clerestory which the Gothic builders brought to such a pitch of perfection. The central hall, or nave, was taken up higher than the side halls or aisles, and this plan in itself was a determining factor in the design. In the gigantic temple at Karnac, which may be taken as typical of the early hypostyle buildings in Egypt, we find a clerestory which was never glazed; and in the temple at Kalabsche, built during the Roman occupation, we find the same system employed to light four successive chambers, one behind the other, each, of course, having the ceiling at a lower level. The introduction of light generally throughout a building was not considered a necessity—partly due, perhaps, to the mysterious rites of the Egyptian religion, and partly, perhaps, due to the wonderfully brilliant skies of the East. In later times there is evidence that the

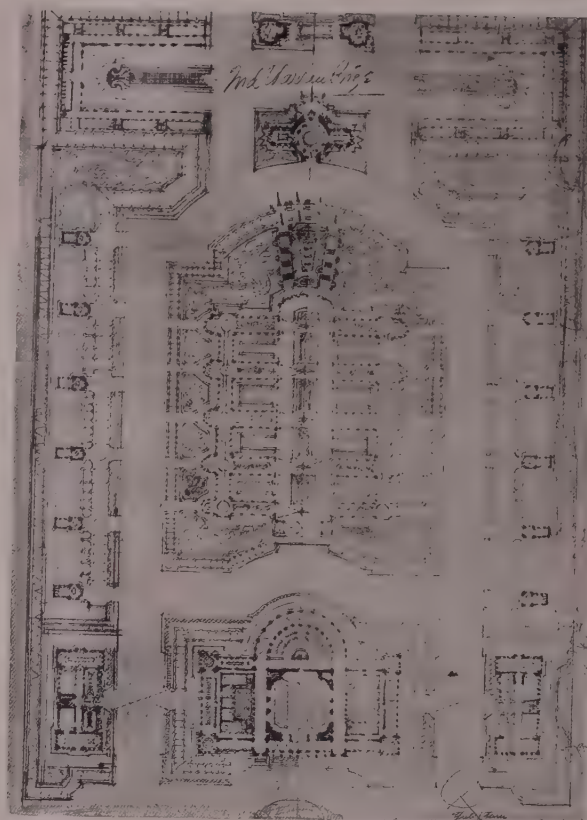
(Continued page 145)

*Read before the London Architectural Association by Mr. Walter Cave.



I Prize.

Chas. S. Cobb, Atelier Cornell.



II Prize.

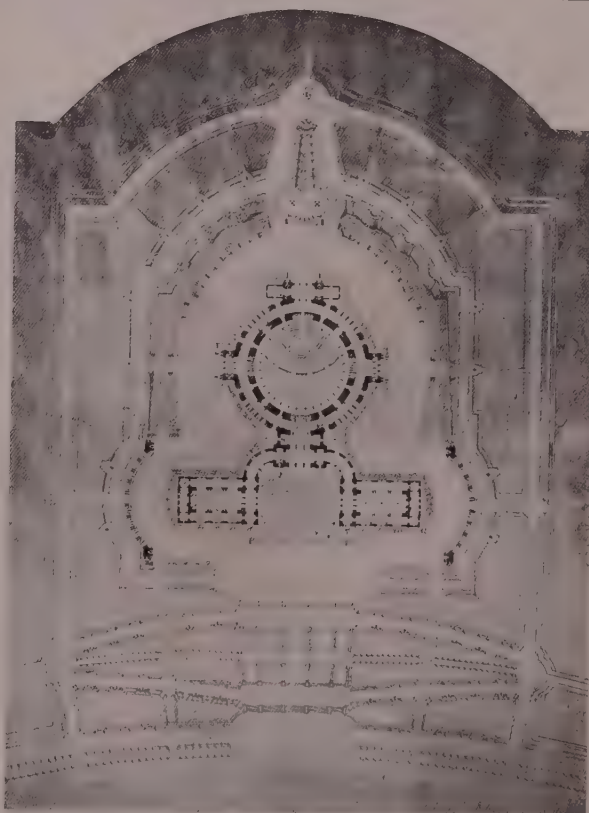
F. J. Feirer, Atelier Hornbostel.

BEAUX ARTS COMPETITION—THE WARREN PRIZE.



II Medal.

W. W. Sharpley, Atelier Cret.



II Medal.

C. H. Bauer, Atelier Cret.

BEAUX ARTS COMPETITION—AN AUDITORIUM FOR CORNELL UNIVERSITY.

(Continued from page 143)

domestic buildings had openings in the front walls over low screens, and in the temples of Edfu and Dendera the same arrangement can still be seen. In reality these openings were only the omission of the wall-screens, either between the columns and the lintels of the clerestory or between the columns in the façade.

When we consider Grecian architecture and the method in which the interiors of those wonderful temples were lit, we are faced with a greater difficulty and more uncertainty. In the Erechtheum and the great temple at Agrigento in Sicily, (420 and 480 B.C.), we have, according to the accepted restorations, windows in the side walls; but these are both exceptional instances, and even here the problem of how the central part was lit remains a matter of conjecture. In the Erechtheum the three windows which appear to have existed are so placed that they seem to have been almost an afterthought. The windows themselves are square-headed, rectangular openings, about two squares in height, tapering towards the top, and placed somewhat uncomfortably as regards their heads, which come some distance below the caps of the columns; they were probably fitted with pierced marble screens. In the temple at Agrigento the windows appear to have been somewhat narrower in proportion, and the heads so arranged that they more nearly line with the caps, and seem to have formed a part of the original design, but have a very crowded effect. Both these examples, as has been stated above, are exceptional, and may be taken as proving the rule that the Greeks did not consider that openings in the screen-walls was the best form of lighting their temples.

All Greek architecture came, we know, from the South, the land of brilliant sunshine, where windows, as we understand them, were either unknown or of quite subsidiary importance. They were very few in number in all Classical work, and never placed to form more than one tier. We can thus, I think, draw the conclusion that windows, such as we require, are never really successful in columnar architecture. The Greeks felt this, and never developed the scheme, and the modern attempts to combine fenestrated with columnar architecture show the impossibility of making a happy compromise between two conflicting and divergent styles. That the Greeks had a method for lighting their temples, is generally accepted by all archaeologists, and it seems evident that if it was not from the side walls, it was from some form of roof or clerestory window. There is, however, one other theory which has a literary foundation. In the tragedy of "Iphigenia in Tauris," it is actually stated that the intervals between the triglyphs in a certain temple were left open, and were to be utilized as a means for thieves to enter. This is a possible solution; but the evidence of words is apt to be misleading in such a case, and it is more probable that some form of clerestory adapted to a sloping roof, as suggested by Mr. Fergusson in his "History of Architecture," was the real method of lighting these interiors, and in support of this we have the evidence of the Egyptian temples. St. Peter's, Eaton-square, is an attempt, and a successful one, to light a church in this method. But, again, the subject becomes of more archaeological than architectural interest, and it is not till we come to the great buildings of the time of the Roman Empire that the admission of light came to be considered as the integral part of the design.

It is thus apparent that fenestration became more important as the art of building advanced westward and northward until it reached its most interesting development in our country, where the necessity for light is of such great importance. The great eye of the Pantheon is a good starting-point for a more detailed consideration of the

subject. In this remarkable building we have an interior completely and perfectly lit by one central opening in the dome, 27 feet in diameter. The total cubical contents of the Pantheon represent nearly 2,000,000 cu. feet. (1,934,600), which gives the extraordinary result that each square foot of skylight lights 3,380 cu. feet of space. This instance has been quoted to show the enormous value of a vertical light, which, according to generally accepted rules, can be taken as about thirty times as valuable as a horizontal one. The arch and dome construction of the Romans gave an opportunity for windows, which were introduced high up beneath the vaulting and above the four barrel arches supporting the dome; these were usually great semicircular openings, and divided by massive mullions into three divisions, finished, according to Viollet le Duc, one with frames of bronze inclosing panes of glass, alabaster, or simply lattice-work. This, it seems probable to suppose, was the usual way of lighting the great central courts of the Roman buildings, and from their plans we know that the various rooms ranged round this court must have been lit only by borrowed lights from the central court itself.

We now come to a very important consideration in fenestration, and that is glass. During the Early Eastern work, briefly referred to above, both in Egypt and Greece, there is nothing to lead us to suppose that glass was used in windows. The openings in the Greek temples were almost certainly unglazed or fitted with marble screens, and the position of these, either in the frieze or as concealed dormers, would not make it an absolute necessity. That glass was in use for domestic utensils at a very early date is undoubted; but it is not until the beginning of the Christian era that we have a definite reference to its use in windows. Pliny, who died in 113 A.D., describes in his "Laurentine Winter Villa" a glass door and curtain; and we may assume that, at least in some cases, glass was used in screens to light the smaller rooms round the great courts of the Roman buildings. It is interesting to note that the great group of the Laocöon was found in one of these inner chambers with no external opening. Thin slabs of alabaster were, no doubt, used in some instances, similar to those still to be seen at Orvieto Cathedral, and pierced marble screens, like those from the Taj-Mahal (built by Italian workmen in 1630), India; and plates of glass, 7 inches by 9 inches, cast in marble frames, are still to be seen at St. Sophia, at Constantinople, which probably date from the building of the church by Justinian, A.D. 540. Bede mentions that in 680 A.D. Abbot Biscop sent to Gaul "manufacturers of glass for windows," which shows that the habit of glazing windows was by no means common in the west of Europe at that time. Even in England during the twelfth century glass was not in common use, for there are instances of church windows, which were closed by shutters of wood or stone, which were unglazed. But to return to the Roman buildings; it is of importance to note that great regard as to aspect was observed. In the Baths of Caracalla—a typical building—the lights beneath the domes opened towards the most favorable points of the compass. The true Roman architecture was based on the use of the Greek lintel construction combined with the Etruscan arch, and, without going into the details of the origin of the latter, it is sufficient for our purpose to note that this combination gave an opportunity of lighting buildings from the side walls. The intercolumniation of the Greeks, as has been pointed out, precluded a satisfactory form of fenestration; but, with the pillars placed at a distance from one another equal to their own height, the intervening screen-wall was well adapted, if not

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THE SCHOOLS OF ORNAMENT.*

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Francis I.

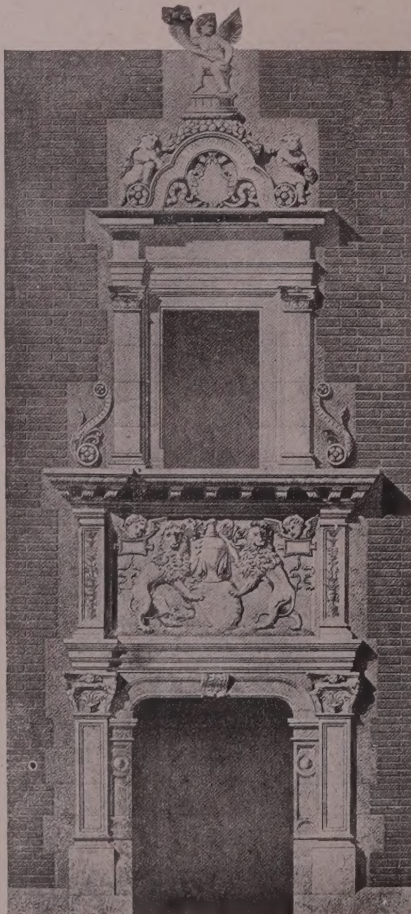
Born at Cognac, 1494, died at Rambouillet, 1547. Imprisoned by Charles V. of Spain, 1525-1526. Grolier, the Bibliophile, was treasurer under Francis I, and designed and supervised many of the beautiful bindings by which his name became famous. (1479-1565). Etienne de Laulne most famous French designer of this period.



ALOIS and Valois-Orleans (1328-1589) were the two houses which gave the glories of the Renaissance to France. Charles, the younger son of Philip the Bold, received the territory of Valois from his father and was the ancestor of the Valois kings.

Early in life Francis showed a remarkable fondness for the fine arts, and chiefly to his later efforts to gratify it, must be attributed the great works of French Renaissance. He was the son of Charles, Count of Angouleme, and became king in 1515.

France was then a fallow field and the influence of the famous Italians whom Francis attracted by his patronage was quickly felt. The



Entrance Doorway.

works at Chambord, Amboise, Blois, Azay-le-Rideau, Chenonceau, Fontainebleau and other sites are examples of the vigorous and fruitful growth from such sowing. It is therefore natural that the ornament of this period savors strongly of the Italian Renaissance, full of grace, vigor and beauty so characteristic of that school. There is, however, a quality in it, which, whether it came from the efforts of Francis himself and his French architects, Dubreuil, Sanson, le Breton, de Chambiges and others to stamp it as French, or from the influence exerted by their constant asso-

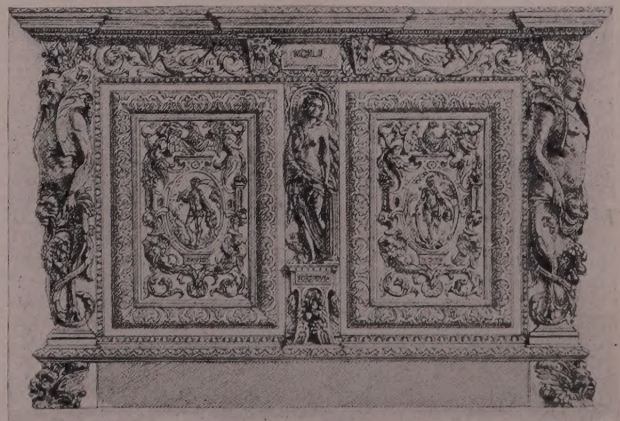
ciation with French ornament, marks it as a distinct departure, in fact a new school. Certain characteristics of this school are easily recognized. Paneled pilasters intersected by the rosette or diamond, the use of a pattern as the background or enrichment of a surface, perforated carved tracery in railings and walls suggested possible by a similar disposition in Gothic art, irregular quoins at corners, the shell, the salamander (Francis' own symbol), delicate arabesques in panels, cherub's heads and children and Satyrs, the S form of console used as a bracket without solid backing, are all characteristic. The effect of perforated ornament was carefully studied, and it was used most lavishly in the volutes of capitals and in balustrades and openings, thus obtaining deep rich relief and considerable delicacy. Both in design and execution the carvings of this school are the works of a robust and refined art, imported though it was. There is a gaiety about it, a vigor and go that mark it as the work of enthusiasts. Such Francis was and such were those, whose genius so fascinated him, Leonardo, Primaticcio, Cellini, del Abbate, Serlio, Vignola, Il Rosso, and others to whom his purse and heart were opened. During the reign of Francis and through the influence of the artists of the Fontainebleau school the cartouche as a decoration, received much attention, and was extensively used during the whole of the Fifteenth or Sixteenth century. It is said that it had its origin in the leather scrolls or placards placed outside the respective owners' tents or marquees, or on trees or other supports at tournaments. These placards curling on the edges under the influence of the sun and rain gave a hint which designers were quick to take.

Another story has it that in the freely curled edges we only see a degenerate form of the Ionic volute, and the latter Mr. Goodyear attributes to the lotus through Egyptian and Greek modifications.

Francis built at Moret near Fontainebleau a hunting lodge in 1523, a gem of the period. This was moved and set up in Paris in 1826, and is well known to students. The medallions on this façade are attributed to Jean Goujon.

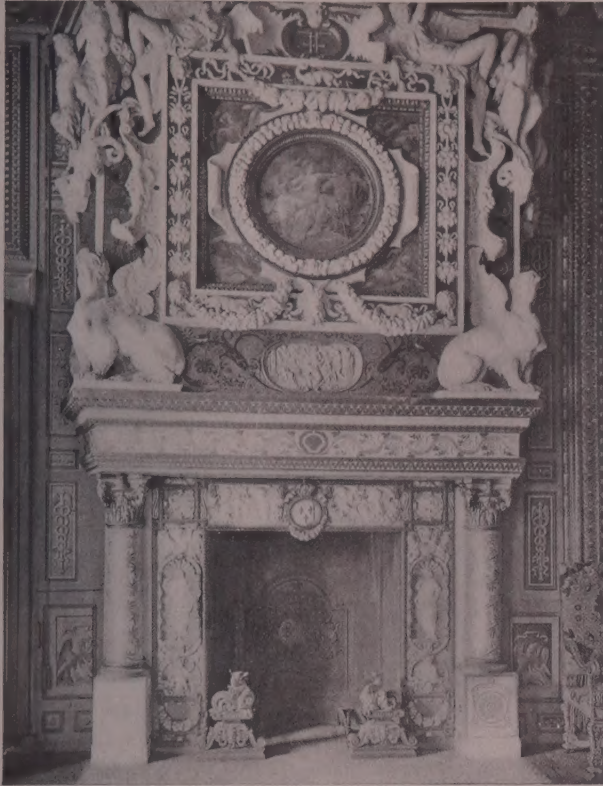
In the autobiography of Benvenuto Cellini the character of Francis is well portrayed and the encouragement which he lavished on all the arts is exemplified in his orders to and his dealings with Cellini.

Few kings have had the privilege of encouraging such an artist



Front of Wooden Chest.

* A series of articles written by Mr. William Winthrop Kent, Architect, forming part of "A Treatise on Locks and Builders' Hardware," by Henry R. Towne, President of the Yale & Towne Mfg. Co., and Past President of the American Society of Mechanical Engineers. This book is profusely illustrated and contains more than 1100 pages, 4x6½". John Wiley & Sons, Publishers. Price, \$3.00. It is the intention of the publishers of ARCHITECTURE to reprint one school in each number.



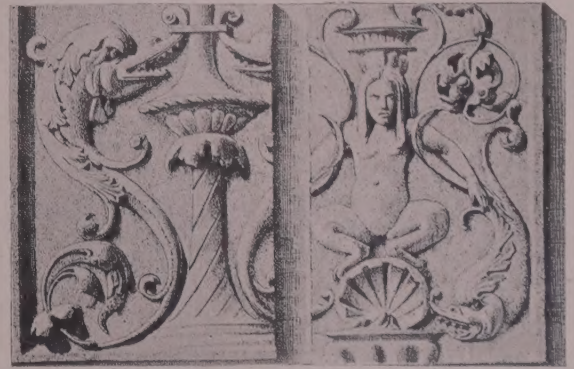
Fireplace at Fontainebleau.

and few artists have known such kingly encouragement. The effect upon French art was far reaching, and the world of arts and letters soon forgave Francis I his sins of omission for what he did for France and mankind in general, in the ennoblement of the individual artist and artisan.

As in all such times, the effect of the improvement in architecture spread through all the arts and sciences, and even furniture

and utensils of daily life soon showed the individual inspiration and skill which the royal master so much loved to discover.

A most charming bit of architecture embellished with exquisite medallions' heads and Latin mottoes is the Tour des Gensdarmes and its wall and brother tower at Caen, built evidently just previously to the reign of Francis, during the rule of Louis XII. It is strongly imbued with the spirit of this period and shows how even a rich man's amusement may, when done with appreciation, become the means of pleasure and positive instruction to the public. It consists now of only two towers connected by a garden wall. But such a wall and such towers! They stamp their creator as at least a patron of talent, if not himself a connoisseur, although living in such times he probably also was the latter. Originally there was a dwelling or villa surrounded by the walls which extended about its rear in a curve, forming in their entirety a little more than a semi-circle with four towers, the other two being directly back of the present ones and forming also parts of the walls. But however charming the plan, the ornament is the attractive portion of the design to-day, and few architectural medallions are more charming than those built into the tower and the crenelations of the wall.



Arabesques, Chateau de Blois. Collection of Mr. Morand.

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obviously intended for window-openings. In later times by superimposing one order above another, giving a series of stories, the opportunity for systematic fenestration was attained, and the windows thus became an integral part of the design. This plan ultimately led to the very elaborate wall arcading, which is seen in so many buildings from 500 to 1200 A.D.; but its use as a means of systematic fenestration was rare, and, as a rule, was a mere necessity of construction. In many of the Early Romanesque buildings in Italy we find a curious arrangement of windows. For instance, in the great basilica of St. Apollinare in Classe, at Ravenna, begun in 538 A.D., the window openings are very small, and made quite subordinate to the wall arcading on the exterior; but from the inside the spacing of the windows is most thoughtfully carried out, as in the case of sister church of St. Apollinare Nuovo. This system of designing the window openings from the inside with little regard to exterior is typical of a people who were developing a style of architecture suited to their Western requirements based on the Eastern tradition; and it is highly probable that the Early Christian antagonism to all the heathen practices may have led them to ignore their exteriors, on which the Greeks spent so much thought and labor. It would take too long to enter into a comparative detailed account of the various national styles in Europe, and we will at once proceed to the English Gothic buildings.

The first thing to be noticed is the same arrangement of subordinating the windows to the external wall-decoration, as has been described at Ravenna. These windows in our Early Norman work were small, and their size was due to various causes; the desire for protection against enemies in those troubled times when churches (and especially their towers) were used as places of defense and refuge; the difficulty and expense of obtaining glass, resulting in their generally being unglazed, and only a shutter of stone or wood used to keep out the weather; and, as has been before mentioned, the form of window itself came from the East, or the land of sunshine. The treatment of the window-openings in the early church towers is very effective. In most cases they were small, and arranged in groups high up, with a baluster-shaft dividing the lights; the main part of the tower was left plain, and great dignity is thus produced. With the advent of the pointed, or lancet windows of the thirteenth century a real attempt was made to make a design in fenestration both from the inside and out. In the lofty square-ended fronts of the Cistercian buildings we find the windows ranged in deeply-set arrays of varied arcading. But, as a rule, the Early Gothic windows in the arcades were subordinated to the general wall scheme, and at Crowland, Durham, and Ely, the Benedictine monks built tier upon tier of arcaded galleries, with occasional windows; which reminds one of the Romanesque work at Pisa. Towards the end of the twelfth century came a most remarkable change in the window treatment of our great Gothic buildings. In its earliest and best stages tracery was always treated as a part of the whole design, and the masons used their stonework with a due regard for its constructive possibilities. The lancet windows, especially those on such a grand scale as Chartres and Paris, measuring 6 feet or 8 feet across, made a magnificent field for the glass-painter such as he did not get again till the end of the fifteenth century, when homogeneous Gothic art was a thing of the past. The increasing richness of glass was for a long time only a part of the general scheme of enrichment, and the development of tracery was really due to the mason; but with the rise of individualism, which was one of the main causes of the decadence of Gothic, the extremely

decorative character of this form of ornamentation called for wider fields for its display. At Selby the combination of tracery and glass reached such a pitch that the tracery practically becomes the cloissons of a great masonry enamel. With the introduction of the transom to divide these great windows into tiers—each division fitted with niched saints—we seem to feel the desire to recall the great sculpture galleries and fronts of Wells, Litchfield, and Exeter. Gradually the glass-painter exercised more and more influence over the mason, and thus we find at Gloucester and King's College Chapel, Cambridge, windows of such a size that the intervening wall spaces are only piers to carry the lofty stone vaults, and these windows, fitted with the magnificent glass of the period, reach the utmost limits of engineering skill in this direction. It is, perhaps, scarcely fair to notice here a modern parallel, but in studying these wonderful examples, one cannot help thinking of the modern plate-glass windows of our streets, where the visible means of support are reduced to a minimum, and all the skill and knowledge of material we have at our disposal is utilized to obtain the greatest possible amount of glass space. There is, however, a lesson to be learnt from the two cases which may, for practical purposes, be taken as parallel. With the Gothic builders the glass itself was set back at a considerable distance from the wall-face on the exterior, and though the mouldings themselves had become comparatively shallow with the growth of the Gothic style, still they were not ineffective, and served to give a certain amount of shadow. In too many instances the exact reverse is the case to-day, and if the great sheets of plate-glass in our modern shop-fronts were recessed, their hopelessly bald effect would, to a certain extent, be minimized. It may be taken as a broad rule that the larger the window the more the glass should be recessed from the outer wall.

With the decay of Gothic, which, for purposes of classification, may be taken as about 1500, a foreign influence began to make itself felt in England, and the interest in the national style, which had been mainly confined to the ecclesiastical structures, was transferred to the domestic buildings after the Dissolution of the Monasteries under Henry VIII. Italian art was first of the long series of outside influences which affected English architecture. The great Renaissance in art and letters may be said to have begun with the fall of Constantinople in 1453; but before the Classical traditions had really been thoroughly assimilated by the English builders there arose under Queen Elizabeth a marvellous growth of stately country houses, in which the followers of the fast-perishing Gothic style made their last effort to accomplish something new.

In the more modest domestic work we find evidence of the growth of a distinctly English adaptation of the Renaissance, and the window treatment of the quiet red-brick fronts, which are to be found almost everywhere, is altogether satisfactory in its proportion and its sense of fitness for its purpose. All nineteenth century architecture was a series of revivals, producing little or nothing that was new, and adding no fresh chapter to our subject. The lesson to be learnt from the study of our subject is briefly this:—Let the plan of a building be fully considered and designed from the first with due regard not only for the requirements, but for the exterior, and let the window treatment bear on the exterior its proper relation to the internal arrangements. If the plan is faithfully designed to meet the given conditions it must of necessity reflect the life and habits of those for whom it is intended, and if the window treatment is also faithfully designed to suit the rooms, the result will be sincerity in the fenestration.